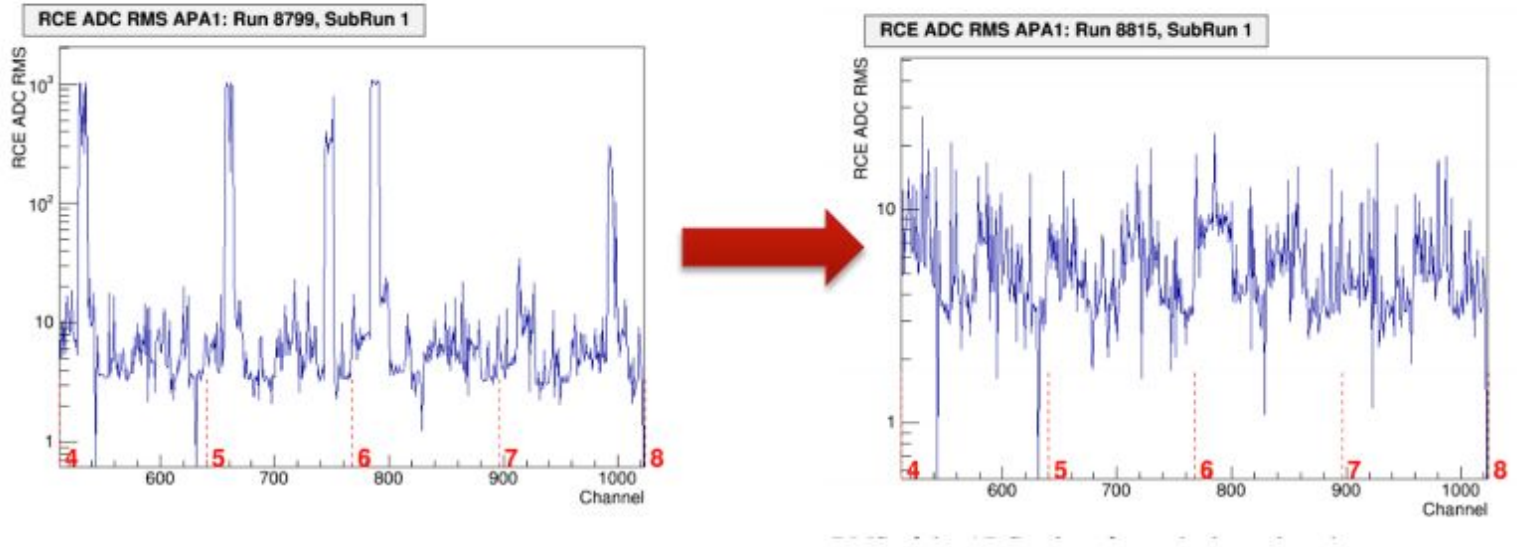
FEMB Status After Cooldown

20160203, 35t - B.Kirby

Overall Status

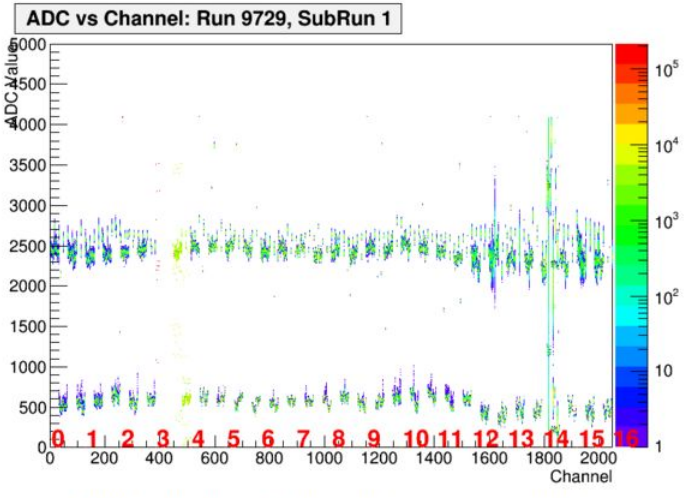
- All 16 FEMBs seem to be basically functioning after LAr filling
  - All FEMB links still working, no dead ASICs (!)
  - ADC synchronization needs to be redone with temperature stablized
- Two FEMBs have no cooling related issues
  - RCE03 FEMB ADC sampling clock not working
  - RCE14 has an odd ADC synchronization issue, needs debugging
- Noise has increased after cooldown, ~2000e- ENC all channels
  - Need to track down exactly when noise jumped, preliminary observation looks like it was after boards were fully immersed (ie. after cooling and wires largely immersed)
  - Noise also significantly higher on induction plane wires following baseline setting change
    - Entirely correlated noise, in principle removable for non-zero suppresed data
    - Need to evaluate whether it makes sense to try setting all channels to 200mV baseline setting, would result in significantly less dynamic range for induction channels
- Plan initial set of noise measurements ASAP
  - Try to identify best (least noisy) settings for operation

ADC Synchronization During Cooldown

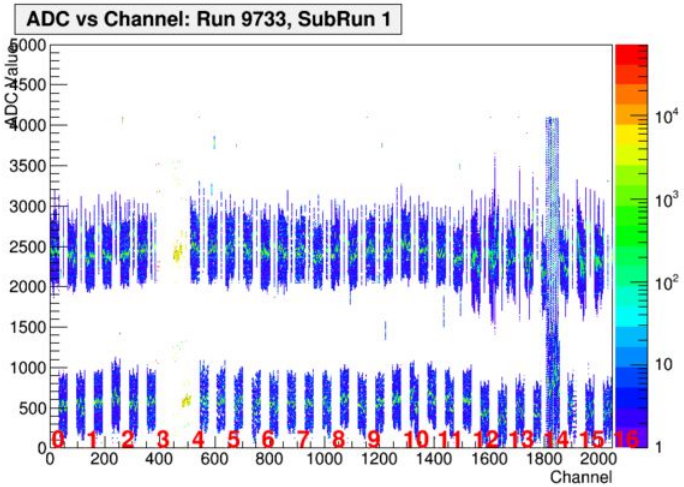


- During cooldown ADC ASICs regularly lost synchronization
  - Completely expected, but somewhat visible issue
  - Might consider fully automating ADC synchronization in future

Calibration Measurements During Cooldown



ADC value for each channel (one entry per tick)



ADC value for each channel (one entry per tick)

- Data-taking continued throughout cooldown
- In addition, every 30 minutes short pedestal + pulser runs taken to provide inputs to noise measurements
    - Used only one FE-ASIC gain + shaping time setting during entire cooldown, missed opportunity to test multiple configurations